REMARKS

The present Amendment is in response to the Final Office Action having a mailing date of October 21, 2003. Claims 1-7 and 9-22, and 28-37 are pending in the present Application. Applicant has amended claims 9, 22, 29, 31, 33, 35, and 37. Applicant has also added claims 38-42. Consequently, claims 1-7, 9-22, and 28-42 remain pending in the present Application.

This application is under Final Rejection. Applicant has presented arguments hereinbelow that Applicant believes should render the claims allowable. In the event, however, that the Examiner is not persuaded by Applicant's arguments, Applicant respectfully requests that the Examiner enter the Amendment to clarify issues upon appeal.

In the above-identified Office Action, the Examiner rejected claims 1-2, 4-7, 10-11, 13-21, 28-29, and 32-35 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,067,114 ("Omata") in view of U.S. Patent No. 4,826,301 ("Ikemori") in further view of U.S. Patent No. 4,825,235 ("Wakabayashi"). The Examiner also rejected claims 3 and 12 under 35 U.S.C. § 103 as being unpatentable over Omata in view of Ikemori and Wakabayashi in further view of U.S. Patent No. 5,825,016 ("Nagahata"). The Examiner also rejected claims 9, 22, 30-31, 36, and 37 under 35 U.S.C. § 103 as being unpatentable over Omata, Ikemori, Nagahata, and Wakabayashi.

In the above-identified Office Action, the Examiner rejected claims 1-2, 4-7, 10-11, 13-21, 28-29, and 32-35 under 35 U.S.C. § 103 as being unpatentable over Omata in view of Ikemori in further view of Wakabayashi. In response to Applicant's arguments, the Examiner stated:

> **[t]he applicant argues that Wakabayashi described setting the aperture value "to be small to improve the soft-tone effect by decreasing the depth of field", and thereby describes setting the aperture value in order to decrease the depth of field, and that one of ordinary skill in the art would understand that the depth of field corresponds to the focus zone. Therefore, the applicant argues that Wakabayashi describes utilizing the aperture size to control the size of the focus zone, but fails to mention shifting (or not shifting) the focus zone, i.e. the cited portion of Wakabayashi fails to describe setting the aperture size such that the focus zone is**

not shifted. The examiner respectfully disagrees with this assessment of the reference. As previously mentioned, the applicant states that the depth of field corresponds to the focus zone. Therefore, if the depth of field is decreased or increased as necessary, the focus zone is correspondingly being shifted. If the depth of field is at the desired position, it no longer needs to be adjusted, and the focus zone as well is not shifted.

Applicant respectfully disagrees with the Examiner's rejection. Claim 1 recites:

1. A method for capturing an image using an image capture device, the image capable of including a plurality of objects, each of the plurality of objects being a corresponding distance from the imaging device, the image being associated with a focus zone, method comprising the steps of:

(a) determining if the image matches at least one criteria;

(b) determining whether at least one of the plurality of objects is out of focus if the image matches the at least one criteria;

(c) determining whether the focus zone can be shifted so that the at least one object is out of focus if the at least one object is not out of focus; and

(d) shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus and if it is determined that the focus zone can be shifted so that the at least one object is out of focus;

(e) setting an aperture size without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus; and

(f) adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Claim 10 recites:

10. An image capture device for capturing an image capable of including a plurality of objects, each of the plurality of objects being a corresponding distance from the imaging device, the image being associated with a focus zone, the image capture device comprising:

means for determining if the image matches at least one criterion;

means for determining whether at least one of the plurality of objects is out of focus if the image matches the at least one criteria;

means for determining whether the focus zone can be shifted so that the at least one object is out of focus if the at least one object is not out of focus; and

means for shifting the focus zone, the focus zone shifting means shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus if it is determined that the focus zone can be so shifted;

means for adjusting an aperture size, the aperture size adjusting means setting the aperture size without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus and adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Claim 19 recites:

19. A computer-readable medium containing a program for capturing an image capable of including a plurality of objects, each of the plurality of objects being a corresponding distance from the imaging device, the image being associated with a focus zone, program including instructions for:

determining if the image matches at least one criterion;

determining whether at least one of the plurality of objects is out of focus if the image matches the at least one criterion;

determining whether the focus zone can be shifted so that that the at least one object is out of focus if the at least one object is not out of focus;

shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus if it is determined that the focus zone can be shifted so that the at least one object is out of focus;

setting an aperture size without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus;

adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Independent claims 1, 10 and 19 recite a method, system and computer-readable medium for capturing an image. In the method, system, and computer-readable medium of claim 1, 10 and 19, if the focus zone can be so shifted, then the focus zone is shifted so that the object is out of focus. Claims 1, 10 and 19 also recite that the aperture size is set without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus. Thus, if shifting the focus zone is sufficient to ensure that the object is out of focus, then the aperture is set in a manner to preserve the shift. Applicant respectfully submits that the aperture size might be adjusted for a variety of reasons. For

example, the aperture size might be increased when the image is captured when there is low light, for example at twilight. See, for example, specification, page 2, lines 1-12 (describing hint mode including setting the shutter speed based on the light or speed of the subject and the aperture size). Furthermore, the soft focus initially set by shifting the focus zone might be further *improved* by changing the aperture size. Ibid. Consequently, the ability of the digital imaging device to provide a soft focus is improved.

As previously discussed, Applicant has found no mention in the cited portions of either Omata or Ikemori of setting the aperture size without shifting the focus zone **after** the focus zone has been shifted and if it has been determined that the focus zone can be shifted so that the at least one object is out of focus. Furthermore, Omata in view of Ikemori fails to teach or suggest adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Applicant respectfully disagrees with the Examiner's assessment of Wakabayashi. Wakabayashi also fails to teach or suggest at least setting the aperture size without shifting the focus zone after the focus zone has been shifted and if it has been determined that the focus zone can be shifted so that the at least one object is out of focus. As described in previous response, the cited portion of Wakabayashi describes setting the aperture value to control the size of the focus zone. Wakabayashi, col. 18, lines 46-48. However, the cited portion of Wakabayashi fails to mention setting the aperture size **after** the focus zone has been shifted and such that the focus zone is not shifted. Instead, the cited portion of Wakabayashi merely indicates that the size of the focus zone and, therefore, the soft focus is controlled through the use of the aperture size. There is no indication in Wakabayashi that the focus zone may be shifted **and** the aperture set without shifting the previously set focus zone.

Applicant also respectfully notes that in the Examiner's response to Applicant's arguments, the Examiner described a case using the teachings of Wakabayashi in which the aperture size would not be set after the focus zone was shifted. Instead, the Examiner describes a case in which the depth of field (focus zone size) is increased or decreased and the focus zone is correspondingly shifted, presumably by setting the aperture size. The Examiner further stated that "[i]if the depth of field is at the desired position, it no longer needs to be adjusted, and the focus zone as well is not shifted." Thus, in the Examiner's hypothetical case, Applicant respectfully submits that once the focus zone is shifted (along with changing size), the aperture would no longer be set. In contrast, claim 1 specifically recites that the aperture size is set **after** the focus zone has been shifted. Consequently, as discussed above, Wakabayashi fails to teach or suggest the method, system, and computer-readable medium recited in claims 1, 10, and 19.

Because the cited portions of Omata, Ikemori, and Wakabayashi are each devoid of reference to setting the aperture size without shifting the focus zone after the focus zone has been shifted, the combination also fails to teach or suggest this feature. Stated differently, if the teachings of Ikemori and Wakabayashi are added to those of Omata, the combination would not set the aperture size without shifting the focus zone **after** the focus zone has been shifted and if it has been determined that the focus zone can be shifted so that the at least one object is out of focus. Consequently, Omata in view of Ikemori in view of Wakabayashi fail to teach or suggest the method, image capture device and computer-readable medium recited in claims 1, 10, and 19. Further, Applicant respectfully submits that a conclusion that a combination of the cited portions of Omata, Ikemori, and Wakabayashi teach or suggest the method, system, and computer-readable medium recited in claims 1, 10, and 19 involves improper hindsight. One "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to

deprecate the claimed invention." In re Fine, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). See also In re Fritch, 23 USPQ2d 1780,1783 (Fed. Cir. 1992). Given that the cited portions of Omata, Ikemori, and Wakabayashi fail to mention setting the aperture size without shifting the focus zone **after** the focus zone has been shifted and if it has been determined that the focus zone can be shifted so that the at least one object is out of focus, Applicant respectfully submits that a conclusion that claims 1, 10, and 19 are unpatentable is based upon cobbling together of the cited portions of Omata, Ikemori, and Wakabayashi in a manner that involves improper hindsight. Accordingly, Applicant respectfully submits that claims 1, 10 and 19 are allowable over the cited references.

Claims 2, 4-7, and 28 depend upon independent claim 1. Claims 11, 13-18, and 32 depend upon independent claim 10. Claim 20-21 and 34 depend upon independent claim 19. Consequently, the arguments herein apply with full force to claims 2, 4-7, 11, 13-18, 20-21, 28, 32, and 34. Accordingly, Applicant respectfully submits that claims 2, 4-7, 11, 13-18, 20-21, 28, 32, and 34 are allowable over the cited references.

The Examiner also rejected claims 3 and 12 under 35 U.S.C. § 103 as being unpatentable over Omata in view of Ikemori and Wakabayashi in further view of Nagahata.

Applicant respectfully disagrees with the Examiner's rejection. Claim 3 and 12 depend upon independent claims 1 and 10, respectively. Consequently, the arguments herein apply with full force to claim 3 and 12. In particular, Omata in view of Ikemori and Wakabayashi fail to teach or suggest adjusting the aperture size without shifting the focus zone if the desired soft focus can be achieved with a focus zone shift alone.

Nagahata fails to remedy the defects of Omata in view of Ikemori and Wakabayashi. However, Applicant can find no mention in Nagahata of adjusting the aperture size without

shifting the focus zone if the desired soft focus can be achieved with a focus zone shift alone. Consequently, if the teachings of Nagahata were added to those of Omata, Ikemori, and Wakabayashi, the combination would still fail to adjust the aperture size without shifting the focus zone if the desired soft focus can be achieved with a focus zone shift alone. Omata in view of Ikemori and Wakabayashi in further view of Nagahata, therefore, fail to teach or suggest the method and image capture device recited in claims 3 and 12. Accordingly, Applicant respectfully submits that claims 3 and 12 are allowable over the cited references.

The Examiner also rejected claims 9, 22, 30-31, 36, and 37 under 35 U.S.C. § 103 as being unpatentable over Omata, Ikemori, Nagahata, and Wakabayashi.

Applicant respectfully disagrees with the Examiner's rejection. Claim 9 recites:

> 9. A method for allowing an image having a center to be captured by an imaging device, the image capable of including a plurality of objects, each of the plurality of objects being a corresponding distance from the imaging device, the method comprising the steps of:
>
> (a) determining if the image matches a plurality of criteria, the step of determining if the image matches the plurality criteria further including the steps of:
>
> (a1) determining the corresponding distance for each of the plurality of objects;
>
> (a2) categorizing the plurality of objects as being located in a foreground or a background based on the corresponding distance, the image matching a first criteria of the plurality of criteria if a first object in foreground has a first corresponding distance and a second object in the background has a second corresponding distance;
>
> (a3) separating the image into a plurality of zones;
>
> (a4) analyzing the image in each of the plurality of zones to determine an amount of the image which each of the plurality of objects occupies, the image matching a second criteria of the plurality of criteria if the first object occupies a particular amount of the image;
>
> (a5) analyzing the image in each of the plurality of zones to determine if the first object in the foreground is in proximity to the center of the image, the image matching a third criteria of the plurality of criteria if the first object is in proximity to the center of the image;
>
> (b) determining whether the second object is out of focus if the image matches at least one criteria;

(c) determining a focus zone;

(d) determining whether the focus zone can be shifted so that that the at least one object is out of focus if the at least one object is not out of focus; and

(e) shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus and if the focus zone can be shifted so that the at least one object is out of focus;

(f) setting an aperture size without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus; and

(g) adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Similarly, claim 22 recites:

22. A computer-readable medium containing a program for capturing an image having a center to be captured by an imaging device, the image capable of including a plurality of objects, each of the plurality of objects being a corresponding distance from the imaging device, the program containing instructions for:

determining if the image matches a plurality of criteria, the instructions for determining if the image matches the plurality criteria further including instruction for:

determining the corresponding distance for each of the plurality of objects;

categorizing the plurality of objects as being located in a foreground or a background based on the corresponding distance, the image matching a first criterion of the plurality of criteria if a first object in foreground has a first corresponding distance and a second object in the background has a second corresponding distance;

separating the image into a plurality of zones;

analyzing the image in each of the plurality of zones to determine an amount of the image which each of the plurality of objects occupies, the image matching a second criterion of the plurality of criteria if the first object occupies a particular amount of the image;

analyzing the image in each of the plurality of zones to determine if the first object in the foreground is in proximity to the center of the image, the image matching a third criterion of the plurality of criteria if the first object is in proximity to the center of the image;

determining whether the second object is out of focus if the image matches at least one criterion;

determining a focus zone;

determining whether the focus zone can be shifted so that that the at least one object is out of focus if the at least one object is not out of focus; and

shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus and if the focus zone can be shifted so that the at least one object is out of focus;

setting an aperture size without shifting the focus zone after the focus zone has been shifted if it is determined that the focus zone can be shifted so that the at least one object is out of focus;

adjusting the aperture size to shorten the focus zone if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Therefore, claims 9 and 22 recite a method and computer-readable medium, respectively, including a program having the steps of adjusting the aperture size without shifting the focus zone if the desired soft focus can be achieved with a focus zone shift alone. The arguments herein thus apply with full force to claims 9 and 22. Consequently, Omata in view of Ikemori and Wakabayashi in further view of Nagahata fails to teach or suggest the method and computer-readable medium recited in claim 9 and 22. Accordingly, Applicant respectfully submits that claims 9 and 22 are allowable over the cited references.

Claims 30 and 36 depend upon independent claims 9 and 22, respectively. Consequently, the arguments herein apply with full force to claims 30 and 36. Accordingly, Applicant respectfully submits that claims 30 and 36 are allowable over the cited references.

Applicant respectfully disagrees with the Examiner's rejection of claims 38-42. Claims 38-42 recite:

38. The method of claim 1 wherein the aperture-adjusting step (f) further includes the step of:

(f1) adjusting the aperture size to shorten the focus zone only if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

39. The method of claim 9 wherein the aperture-adjusting step (g) further includes the step of:

(g1) adjusting the aperture size to shorten the focus zone only if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

40. The image capture device of claim 10 wherein the aperture adjusting means further adjust the aperture size to shorten the focus zone only if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

41. The computer-readable medium of claim 19 wherein the aperture-adjusting instructions further include instructions for:

adjusting the aperture size to shorten the focus zone only if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

42. The computer-readable medium of claim 22 wherein the aperture-adjusting instructions further include instructions for:

adjusting the aperture size to shorten the focus zone only if it is determined that shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Thus, claims 38-42 recite adjusting the aperture size to shift the focus zone only if it is determine that shifting the focus zone alone is insufficient for providing the desired soft focus. Applicant also notes that independent claims 1, 10, 19, and 22 already recited determining whether the focus zone can be shifted so that the at least one object is out of focus if the at least one object is not out of focus and shifting the focus zone so that the at least one object is out of focus if at least one of the plurality of subjects is not out of focus and if it is determined that the focus zone can be shifted so that the at least one object is out of focus;

Applicant has found no mention in the cited portions of Omata, Ikemori, and Nagahata of adjusting the aperture size to shorten the focus zone. Although Wakabayashi does adjust the aperture size to decrease the depth of field (shorten the focus zone), Wakabayashi apparently does so each time the insertion of a soft focus filter is detected. Wakabayashi, col. 18, lines 38-48. Stated differently, Wakabayashi appears to **always** use the aperture size to change the size of the

focus zone. In contrast, claims 38-43 recite adjusting the apertures size to change the size of the focus zone **only** if shifting the focus zone alone is not sufficient for the at least one object to be out of focus.

Furthermore, in response to Applicant's arguments, the Examiner indicated that Omata and Ikemori were relied upon to teach this feature. The Examiner also stated that because Ikemori discloses that the focus zone is shifted so that the object is out of focus if the object is not already out of focus and that in order to be able to shift the focus zone, it is inherent that the focus zone be deemed shiftable. In so doing, the Examiner cited col. 11, lines 41-60 of Ikemori.

Applicant respectfully disagrees with the Examiner. Claims 38-42 require first determining whether a focus zone shift alone could provide the desired soft focus; if so using only a focus zone shift to provide a soft focus; and **only** changing the aperture size to change the size of the focus zone if a focus zone shift is insufficient. The system of Ikemori provides a soft focus by introducing a spherical aberration into the image. Ikemori, col. 11, lines 34-40. Ikemori teaches that the spherical aberration is introduced by moving one of the lenses in the system of Ikemori. Ikemori, Abstract, lines 5-11. The focus of the image is then readjusted using another lens. Ikemori, col. 3, lines 7-17. Thus, the focus zone is shifted to improve the quality of the image. Applicant respectfully submits that no determination of whether a shift in the focus zone is sufficient to provide the soft focus is made. Consequently, Ikemori also does not shift the focus zone and then only changing the aperture size to change the size of the focus zone if the focus zone shift is insufficient to provide the desired soft focus. Moreover, Omata fails to remedy the defects of Ikemori. Omata describes classifying objects in the image based on the size and proximity of objects, detecting compositional changes, such as an object being moved from the center to the edge of the image, and providing a continuous focus to ensure that the object the

operator intends as the subject remains in focus. Omata, col. 1, line 40-col. 2, line 2. Consequently, Omata is concerned with tracking an object that is in focus, so that the subject of the image brought into focus stays in focus. Thus, like Ikemori, Omata fails to determine whether only a focus zone shift can provide the desired soft focus, shift the focus zone and then only change the aperture size to change the size of the focus zone if the focus zone shift is insufficient to provide the desired soft focus. Consequently, like the cited portions of Wakabayashi, the cited portions of Ikemori and Omata fail to teach or suggest the method, system, and computer-readable medium recited in claims 38-42. Thus, any combination of the cited portions of Omata, Ikemori, and Wakabayashi would also fail to teach or suggest the method, system, and computer-readable medium recited in claims 38-42. Accordingly, Applicant respectfully submits that claims 38-42 are separately allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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February 19, 2004

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